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## PATENT ABSTRACTS OF JAPAN

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## (54) RECIPROCATING ENGINE

## (57)Abstract

**PURPOSE:** To provide a reciprocating engine capable of performing explosion of one time or more per one turn of a crankshaft, increasing expansion work volume and improving an output and thermal efficiency.

**CONSTITUTION:** An engine has a rotatably arranged output shaft 12, connecting member 13 fixedly formed in the output shaft 12, cocoon-shaped guide grooves 21 having a pair of small diametric guide grooves 21c, 21d and a pair of large diametric guide grooves 21a, 21b formed in the connecting member 13 and opposed by interposing the output shaft 12 and connecting rods 11 of relatively movable connecting big end parts 11b to the guide groove 21. The engine is provided with pistons 10 fixedly connected to small end parts 11a of the connecting rods 11 and cylinders 3 of inserting the pistons 10 in a direction at a right angle to the output shaft 12. A minimum distance S' from an axial line of the output shaft 12 to the one small diametric guide groove 21d is set smaller than a minimum distance S to the other small diametric guide groove 21c, and further in explosion and exhaust stroke, the one small diametric guide groove 21d passes through the big end part 11a of the connecting rod 11.

